



# MINIMUM STANDARDS FOR ACVS FELLOWSHIP TRAINING PROGRAM IN VETERINARY SURGICAL ONCOLOGY

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**MINIMUM STANDARDS FOR ACVS FELLOWSHIP TRAINING PROGRAM  
IN VETERINARY SURGICAL ONCOLOGY**

A Fellow or Founding Fellow, Surgical Oncology is a Diplomate of the American College of Veterinary Surgeons (ACVS) who has obtained additional training and experience in the multidisciplinary approach to the prevention, diagnosis, treatment and rehabilitation of cancer patients, and who devotes a major portion of his or her professional effort toward these activities and to cancer research.

**I. Objective**

The objectives of the ACVS Fellowship Training Program in Veterinary Surgical Oncology are to build on the surgical knowledge and experience obtained during a surgical residency through an intense period of applied focus on the surgical management of cancer as it relates to comprehensive cancer care and to encourage a lifetime emphasis of excellence in the field of veterinary surgical oncology. A Fellowship Training Program in Veterinary Surgical Oncology should prepare its graduates to successfully interact with other disciplines of oncology and to provide a leadership role in the surgical, medical and lay communities in matters pertaining to animal cancer surgery. It is expected that most graduates of Fellowship Training Programs in Surgical Oncology will devote a major portion of his or her professional effort to the prevention, diagnosis, treatment and rehabilitation of cancer patients and to cancer research.

Following such Fellowship training, an ACVS Founding Fellow or Fellow in Surgical Oncology should have a high level of expertise in the selection of patients for surgical therapy with thorough understanding and experience in other forms of cancer treatment, such as radiation therapy, chemotherapy, palliative therapies, rehabilitative therapies, immunotherapy and clinical trials. The Surgical Oncology Fellow must be proficient in knowledge of the benefits and risks associated with a multidisciplinary approach that includes surgical treatment.

**II. Definitions**

- A. **ACVS Fellowship Training Program in Veterinary Surgical Oncology**: For each fellow candidate, a mentored training program of specific application, duration, curriculum and evaluation for completion as specified in this document.
- B. **Fellowship versus Residency**: The Surgical Oncology Fellowship differs from the surgical residency. The surgical residency and surgical oncology fellowship training periods may not overlap. The surgical oncology fellowship training may occur at any time following completion of residency training and acceptance of credentials by ACVS and is distinguished from the general residency training by its focus on a multidisciplinary approach to surgical oncology.
- C. **Primary Mentors and Program Directors**: Only an ACVS Diplomate, in good standing, who is an ACVS Fellow or ACVS Founding Fellow may mentor a fellow candidate or be on record as a program director in the appropriate discipline. Primary mentors and program directors must maintain ACVS Diplomate status according to ACVS criteria. The same individual may serve as both institutional

program director and primary mentor. For each fellowship program, the minimum requirement for the number of mentors is one ACVS Fellow or ACVS Founding Fellow in the discipline per fellow candidate, although more than one mentor in the training program is preferable (e.g., two fellows may have two fellow candidates in a program at the same time). If there are multiple fellows and fellow candidates in a fellowship program, during a given clinical week, an ACVS Fellow or ACVS Founding Fellow may supervise the training of two fellow candidates simultaneously in their discipline, however, each surgical case may only be claimed as “primary surgeon” by a single fellow candidate.

- D. **Supervising Mentors:** Supervising mentors are those who are directly supervising the fellow candidate the majority of time during their fellowship training. They are the Program Director, Primary Mentor and other ACVS Founding Fellows or Fellows.
- a. ACVS fellowship trained ECVS Diplomates can supervise fellowship training up to, but no more than, 30% of the required training weeks for any fellow candidate in training. These individuals must provide documentation certifying completion of ACVS fellowship training to the ACVS office prior to serving as a supervising mentor, pending approval by the Fellowship Committee. Permitting ECVS Diplomates to serve as supervising mentors as described in this section applies to all current and future ACVS Fellowship Programs.
- E. **Supporting Faculty:** Supporting Faculty is all faculty, other than supervising mentors, involved in training of the fellow candidate. This includes:
- a. Medical oncologist (DACVIM (Oncology) or DECVIM (Oncology))
  - b. Radiation oncologist (DACVR, Radiation Oncology)
  - c. Other ACVS Diplomates who are not Founding Fellows or Fellows and ECVS Diplomates
- F. **The title “ACVS Founding Fellow, Surgical Oncology”:** An ACVS Diplomate who has received Fellow status as a result of credentials that were submitted, reviewed and approved during the open call for Founding Fellows in 2011-2012.
- G. **The title “ACVS Fellow, Surgical Oncology”:** An ACVS Diplomate who has successfully completed an ACVS Fellowship Training Program in Veterinary Surgical Oncology from 2012 onwards. To earn the title “Fellow, Surgical Oncology” the individual must first achieve Diplomate status in the ACVS. One cannot become an ACVS Fellow until one is first board-certified by the ACVS as a surgeon.
- H. **The title “ACVS fellowship trained ECVS Diplomate”:** an ECVS Diplomate who has successfully completed an ACVS fellowship training program in a described discipline. To earn the title “ACVS Fellowship trained ECVS Diplomate,” the individual must first obtain Diplomate status with ECVS. Thus, an individual cannot become an ACVS Fellowship trained ECVS Diplomate without first being an ECVS Diplomate.
- I. **The title for the Surgical Oncology Fellowship Candidate is “Fellow Candidate, Surgical Oncology”:** A person currently enrolled in a Fellowship Training Program in Veterinary Surgical Oncology who has not yet completed that program may use this title in correspondence or other means of communication. No connection to the ACVS may be implied.
- J. **Terminology for a person who completed an ACVS Fellowship Training Program in Veterinary Surgical Oncology, but is not ACVS board certified:** A person who has completed an ACVS Fellowship Training Program in Veterinary Surgical Oncology and has not passed the ACVS certifying examination may indicate only that they have

completed a Fellowship Training Program in Veterinary Surgical Oncology. No connection to the ACVS may be implied. Terms such as "ACVS Fellow eligible" and "completed an ACVS Fellowship Training Program in Veterinary Surgical Oncology" should not be used. An individual who identifies their professional credentials using these terms may be eliminated from the examination process.

- K. **Fellow-in-Training Clinic Week:** The fellow-in-training clinic week is defined as a minimum of five full work days in clinic and may include additional night and weekend patient care as specified by the mentor, program and institution.
- L. **Mentor Work Week:** The mentor work week is defined as a minimum of three working days on site with the fellow candidate outside of which the mentor remains available to the fellow candidate for consultation by the most efficient and appropriate means. This may include a personal visit or by telecommunication. The emphasis is that the mentor must support the fellow candidate and assure patient safety and care.
- M. **Trackable Surgical Oncology Case:** A surgical oncology case that can be tracked in the Fellowship Training Case Log and counted as a "trackable" case is a surgery that is "performed under Surgical Oncology mentorship." This means that the case is operated during a fellow-in-training clinic week wherein the mentoring Surgical Oncology Fellow is on site. The mentor may be physically present in the operating room or, if the fellow candidate possesses sufficient training to proceed alone, the mentor is available for appropriate consultation.

### III. Institutional Requirements

- A. The Surgical Oncology Fellowship training must be conducted at a veterinary medical facility (hospital or institution) that offers the scope, volume and variety of patients affected with both surgical and non-surgical oncological conditions, as well as the complimentary services necessary to care for these patients including:
  - at least one board-certified medical oncologist [DACVIM (Oncology) or DECVIM (Oncology)] employed full time (see below) at the primary training institution
  - on-site medical imaging facilities
  - access to board-certified radiation oncologist (DACVR, Radiation Oncology) for interpretation of imaging studies either on site or by telecommunication
  - critical care facilities
  - patient access to radiation facilities
  - patient access to rehabilitative services
  - clinical and anatomical pathologists either on site or by telecommunication
- B. Fellow candidates should have a broad exposure to advanced imaging techniques, radiation therapy and radiation planning, medical oncology, palliative medicine and specialized surgical opportunities distinct from residency training. Training institutions will need to carefully consider whether they can provide the depth and breadth of training required before agreeing to participate in the training of a fellow candidate.
- C. Clinical experience alone is insufficient education in surgical oncology. The training

program must include a regularly scheduled didactic program consisting of lectures and journal clubs covering not only clinical surgical problems but also nonsurgical, basic science, clinical research and medical and radiation oncology.

- D. A written agreement, crafted by the institution, to participate in the training of the fellow candidate (*Fellowship Training Agreement*) must be formally documented by both the primary training institution (Department Head or Hospital Director) and the responsible host mentor at all ancillary institutions (if training will occur at more than one facility). This agreement will serve to define the clinical and educational relationship between the fellow candidate and the training institution(s) as to their responsibility to provide mentorship to the fellow candidate for the entirety of their program. This training agreement must specify the agreed duration of the training program (minimum of one year, maximum of three years), which should be determined before training begins. This agreement is retained by the institution.
- E. Each institution will craft a statement (*Statement of Compliance*) to be signed by the fellow candidate. This statement will indicate the fellow candidate understands to undertake their clinical role with the utmost integrity, care, professionalism and responsibility to the institution and the patients whom they serve. The statement may also specify certain specific expectations of day-to-day work responsibilities and schedules. Licensing requirements for practice at each institution are the responsibility of the fellow candidate, and the fellow candidate is expected to remain in good standing throughout the Fellowship Training Program in Veterinary Surgical Oncology with both the training institution(s) and all state and federal licensing agencies.

#### **IV. Fellow Candidate Requirements**

- A. The fellow candidate must have completed a surgery residency (at either an ACVS or ECVS residency training program) prior to beginning an ACVS fellowship training program. It is not necessary to be board certified by the ACVS before beginning the program, but becoming board certified by the ACVS is required before that individual can use the title of ACVS Fellow. Similarly, it is not necessary to be board certified by the ECVS before beginning the program, but becoming board certified by the ECVS is required before that individual can use the title ACVS fellowship trained ECVS Diplomate. No aspects of the surgery residency can be applied toward the requirements of fellowship training.
- B. The fellow candidate must register with ACVS at least 60 days prior to the start date of the Fellowship Training Program in Veterinary Surgical Oncology. The fellow candidate must work with the Program Director and Primary Mentor to complete the *ACVS Fellowship Training Program in Veterinary Surgical Oncology Registration Form*. Required information includes:
  - 1. The name of the primary institution or hospital where the Fellowship Training Program will take place.
  - 2. The name and contact information for the Fellowship Training Program Director and Primary Mentor.

3. A list of ACVS Founding Fellows, ACVS Fellows, and ACVS fellowship trained ECVS Diplomates (who are permitted to supervise fellowship training up to, but no more than, 30% of the required training weeks for any fellow candidates in training) who are included on the team of supervising mentors for the fellow candidate.
  4. The names and contact information of required specialists (supporting faculty) involved in training of the fellow candidate. Supporting faculty must include at least one DACVIM (Oncology) or DECVIM (Oncology) who is employed full time at the primary training institution and one radiation oncologist (DACVR, Radiation Oncology) who will be providing mentorship of the fellow candidate's radiation oncology training (may take place at a separate institution). A full time specialist is defined as someone who is physically present at least three working days of each week concurrent with the working days of the fellow candidate. The specialists will need to indicate their willingness to assist in training of the fellow candidate and that they have read and understood the specific requirements of the ACVS Fellowship Training Program outlined herein.
  5. A fellow candidate registration fee (\$1,000).
  6. Acknowledgement of a *Fellowship Training Agreement* between the institution and the responsible host mentor at all ancillary institutions (if training will occur at more than one facility). (See III: Institutional Requirements, section D.)
  7. Acknowledgment of the signed *Statement of Compliance* between the fellow candidate and institution regarding the fellow candidate's responsibility to the institution. (See III: Institutional Requirements, section E.)
  8. The signatures of the fellow candidate, Program Director and Primary Mentor.
- C. The fellow candidate shall provide to each training institution a signed *Statement of Compliance*, crafted by the institution, indicating their understanding to undertake their clinical role with the utmost integrity, care, professionalism and responsibility to the institution and the patients whom they serve. The statement may also specify certain specific expectations of day-to-day work responsibilities and schedules. Licensing requirements for practice at each institution are the responsibility of the fellow candidate, and the fellow candidate is expected to remain in good standing throughout the Fellowship Training Program in Veterinary Surgical Oncology with both the training institutions and all state and federal licensing agencies.
- D. The fellow candidate must act as first assistant or primary clinician/surgeon on all cases assigned by the supervising mentor(s). The fellow candidate is responsible for reviewing the oncologic and surgical literature as to the surgical and nonsurgical procedures, approaches, options and adjuvant therapies for all cases assigned to them or seen by the supervising mentor(s) on clinic with them and any case on the service that will be going to surgery. The fellow candidate is responsible for reporting to the supervising mentor(s) any complications, client complaints or concerns as soon as they are known and for creating appropriate medical record documentation while on clinic.
- E. The fellow candidate shall keep a case log listing the cases operated. This should

include the medical record number and the general type of surgery (specifically Surgical Oncology Fellowship Level 1 or 2 – see Appendix 3) and whether the cases were directly supervised by supervising mentor(s) or non-supervised. This will be submitted along with the activity week logs to the ACVS office to be reviewed by the ACVS Surgical Oncology Fellowship Oversight Committee every six months of the fellowship training period and again at the end of the Fellowship Training Program.

- F. The fellow candidate must publish and provide evidence of a manuscript that has been accepted as a peer reviewed publication. Similarly for fellowship programs having requirements for atlas-style website publications (currently applicable for Joint Replacement, Surgical Oncology, and Minimally Invasive Surgery Fellowship Programs), the fellow candidate must provide evidence the digital contribution has been accepted with peer review.

The publication(s) may follow either of the following formats:

- A publication driven by prospective or retrospective hypothesis following the scientific method, or
- A single atlas-styled case report of an advanced surgical procedure or related technique supplemented by detailed photographs and, as useful, video to be published on the Veterinary Society of Surgical Oncology (VSSO) website. An accompanying narrative should include a brief analytical literature review including the indications and alternatives to the procedure; important rudiments of knowledge (anatomy, physiology, pathophysiology, microbiology, etc.); a description of potential complications of the procedure as reported and encountered; how each complication might be avoided; and a bibliography.

- G. It is possible that during the fellowship training period one of several key events might occur, including departures of the Program Director, Primary Mentor, the full-time board-certified Medical Oncologist, or the board-certified Radiation Oncologist. In the event of any of the above or any other significant change in the program occurring, it is the responsibility of the fellow candidate to contact the ACVS Surgical Oncology Fellowship Oversight Committee as soon as possible with a clearly defined and outlined solution. A modification to any registration information must be reported to the ACVS office within 60 days of the key event. In the event of the Primary Mentor leaving, no more fellow-in-training clinic weeks can be logged until a new mentor has been identified and the change to the program approved by the ACVS Surgical Oncology Fellowship Oversight Committee. Fellow candidates should be clear that such significant change might result in a delay of several months to the training program and, if no acceptable solution can be found, the training program might be terminated.

- H. Extenuating circumstances are defined as unforeseen or unavoidable events that altered a fellowship training program which could not reasonably have been anticipated or avoided in advance of the request for accommodation. Examples include a health condition, change in fellowship training personnel, or a drop in the caseload.
1. The fellow candidate and a representative from the fellowship training program

- will submit a dated written request to the Fellowship Oversight Committee (FOC) detailing the nature of the extenuating circumstance and the proposed change(s) to the fellow candidate's fellowship training program.
2. From the time of receipt, the FOC will have four weeks to discuss, vote on the request, and send notification of the decision.
    - a. If the majority of the FOC is not in favor of granting the request, the FOC will notify the fellow candidate, fellowship training program representative, and the FC and provide a summary of the FOC's discussion and the outcome of the FOC vote. A summary will be included in the FC's activity report to the BOR.
    - b. If the majority of the FOC is in favor of granting the request, the FOC will submit the request along with a summary of FOC discussion and the outcome of the FOC vote to the FC.
  3. For requests supported by the FOC (i.e., 2.b above), the FC will have four weeks from the time of receiving the information from the FOC to discuss, vote on the request, and send notification of the decision. The FC will inform the FOC, the fellow candidate, and the fellowship training program representative and provide a summary of the FC's discussion and the outcome of the FC vote. A summary will be included in the FC's activity report to the BOR.

#### **V. Program Director and Primary Mentor Expectations**

- A. The Program Director and the Primary Mentor must be ACVS Diplomates in good standing and either ACVS Founding Fellows or Fellows in Surgical Oncology.
  1. Primary Mentors and Program Directors must maintain ACVS certification according to ACVS criteria.
  2. The same individual may serve as both institutional Surgical Oncology Program Director and Primary Mentor.
  3. An individual Primary Mentor can be a mentor for no more than one fellow candidate at a time. Two supervising mentors could supervise two candidates who alternate between them, although there must be a clearly defined Primary Mentor for each candidate.
- B. The ACVS Fellowship Training Program in Veterinary Surgical Oncology is considered an intensively mentored experience. This may require varying levels of direct (i.e., at the table) supervision at different phases of the fellow candidate's training. Fellow candidates have completed a surgical residency and therefore should begin their Fellowship Training Program with certain core surgical competencies. Nonetheless, good surgical decision making in complex oncological cases and optimal integration of surgical intervention with other cancer treatment modalities requires experience.
  1. The fellow candidate must receive mentored assistance or observation on a case-by-case basis until such a time that the fellow candidate is competent to proceed with similar cases unassisted and unobserved.
  2. A supervising mentor must be available for consultation at all times during the Fellowship Training Program. While the Primary Mentor may not be personally available at all times, he or she should ensure that there is mentorship



available at all times. The mentor should be available at least three regular full work days per clinic week for that week to be counted towards the fellow candidate's case log. During the training period, it remains the responsibility of the supervising mentor(s) to be aware and proximate enough to ensure patient safety. An ACVS Diplomate who is not a Founding Fellow or Fellow may provide supervision when the Primary Mentor or other supervising mentor is not available; however, surgeries performed under these circumstances will need to be reviewed by the Primary Mentor in order to be counted as trackable cases.

- C. The Program Director must assure each fellow candidate's progress during the program is formally evaluated in writing and feedback provided to the fellow candidate at least semi-annually.
  - The Program Director or the Primary Mentor can perform this function.
  - The fellow candidate should be advised of any deficiencies in time to correct problems prior to completion of the Fellowship Training Program and a performance improvement plan put in place if deficiencies are identified. If satisfactory improvement is not met in the specified time frame, the fellow candidate can be dismissed from the training program.
- D. Fellow candidates must be provided an opportunity to evaluate the overall fellowship training program, as well as all educational events, rotations, conferences, and faculty. These evaluations should be confidential and should be submitted by the fellow candidate to the Fellowship Committee's ACVS staff liaison. The staff liaison will compile the information and submit it to the Fellowship Committee for review.
- E. Every three years, the Fellowship Committee will complete a full review of the evaluations provided by fellow candidates to determine whether the goals of the training program are being achieved and whether ancillary institutions/faculty are effective in their training mission.

## **VI. Specific Program Requirements**

- A. The ACVS Surgical Oncology Fellowship Oversight Committee will review for approval each Fellowship Training Program on request by a fellow candidate. Requests to initiate programs must be made at least 60 days prior to the start of the fellowship training period to allow time for the ACVS Surgical Oncology Fellowship Oversight Committee to review the program plan. The program approval will remain in force for three years providing no substantive changes in the program or personnel occur.
- B. Review of the primary training institution's oversight of Fellowship Training Programs will occur once every three years or when substantive changes occur to ensure the minimum standards are met. On behalf of each primary training institution, Program Directors shall submit all evaluations, case logs and activity logs for each fellow candidate directed over the last three years.

- C. A fellow candidate may complete a Fellowship Training Program in a minimum of one year but must be completed in a maximum of three years.
- D. The Fellowship Training must include a minimum of 42 weeks on clinic. A fellow-in-training clinic week is defined as a minimum of five full work days in clinic and appropriate case management on nights and weekends (see II. Definitions, section J).
- E. Up to eight weeks during the one-year Fellowship Training Program can be taken for ACVS Certification Examination preparation with two additional weeks off clinic time to be scheduled for other activities including vacation/out rotations or additional ACVS Certification Examination preparation time, if the fellow candidate chooses to use vacation weeks in this manner.
- F. Fellowship Training Programs occurring over a period longer than one consecutive year must include clinical rotation blocks of no less than four consecutive weeks to ensure an appropriately intensive clinical experience.
- G. A regularly scheduled didactic program consisting of attendance at case conferences and journal clubs covering clinical surgical oncology, medical oncology, radiation oncology, basic science, clinical research and rehabilitation should be organized. These should be outlined at the beginning of the fellow candidate's program and involve no less than 20 attended sessions in a broad cross section of the above topics.
- H. Presentation of three comprehensive oncology case discussions to an audience that includes their mentors (surgical, medical oncology and radiation oncology) and may include other ACVS Diplomates and residents (surgical, medical oncology, etc.). The cases presented should represent complex multi-modality approaches to the management of a cancer patient. The intention of the audience is to prepare the fellow candidate to successfully interact with other related disciplines and begin to provide a leadership role in the link between the disciplines.
- I. Required learning objectives for medical oncology skills are outlined in Appendix 1. Mastery of these learning objectives must be documented by the medical oncologist who was identified as supporting faculty at the start of the Fellowship Training Program. If the Fellowship Training Program is designed such that focused clinical weeks (rotations in medical oncology) must occur in order to master the required training objectives, such clinical weeks (rotations) must occur in addition to the 42 clinical training weeks specified for surgical oncology case experience.
- J. Objectives for radiation oncology skills are outlined in Appendix 2. Mastery of these learning objectives must be documented by the radiation oncologist who was identified as supporting faculty at the start of the Fellowship Training Program. If the Fellowship Training Program is designed such that focused clinical weeks (rotations in radiation oncology) must occur in order to master the required learning objectives, such clinical weeks (rotations) must occur in addition to the 42 clinical training weeks specified for surgical oncology case experience.

- K. A minimum of 250 surgical oncology cases must be performed under an ACVS Surgical Oncology Fellow or Founding Fellow mentorship during the Surgical Oncology Fellowship Training Program. The fellow candidate can either be the primary surgeon or first assistant on the case in order for the case to be counted in the 250 case minimum. If multiple fellow candidates scrub on a case, only one person can count as primary and one as first assistant.
- L. The specific type of surgical procedures performed during training can include soft tissue and orthopedic procedures, but the emphasis of the fellow candidate's effort should be directed toward surgical oncology, and only surgical oncology cases can be counted toward the procedure total in the case log. Moreover, the type of surgical oncology procedures must demonstrate sufficient depth and breadth of diversity and advanced skills. As such, the 250 cases should consist of no less than 35% or a minimum of 87 level 2 cases. Level 1 and Level 2 case examples are outlined in Appendix 3. All decisions regarding whether a procedure is Level 1 or Level 2 are to be made by the Primary Mentor and not the fellow candidate. The Primary Mentor must sign off on all surgical case logs at the end of the fellowship training.
- M. Publication (See Section IV: Fellow Candidate Requirements)
- N. The Primary Mentor, the Program Director and supporting faculty will determine if the fellow candidate has successfully completed the Fellowship Training Program at the end of the Fellowship Training Program. The fellow candidate must submit the following within three years of initiating the Fellowship Training Program to be considered for the designation of ACVS Fellow in Surgical Oncology:
- letter of intent to become an ACVS Surgical Oncology Fellow
  - supporting letters from the Program Director and Primary Mentor indicating successful completion of the program
  - all supporting documentation (case logs, signed documentation of radiation and medical oncology training, case presentations, etc.)
- Review by the ACVS Surgical Oncology Fellowship Oversight Committee, ACVS Fellowship Committee and ACVS Board of Regents will occur within six months of submission of materials to the ACVS office.
- O. Activities of the fellow candidate in Surgical Oncology Fellowship Program will be monitored by the ACVS Surgical Oncology Fellowship Oversight Committee. The ACVS Surgical Oncology Fellowship Oversight Committee will provide a report to the ACVS Fellowship Committee each fall specifying:
- number and location of fellowship programs
  - names of fellow candidates pursuing fellowships
  - results of requirements completion
  - requests for program modification
- P. After fellow candidates successfully complete all program requirements, the ACVS Board of Regents will grant Fellow status based on the recommendation of the Surgical Oncology Fellowship Oversight and review of the ACVS Fellowship Committee.

**Appendix 1**  
**ACVS Surgical Oncology Fellow**  
**Medical Oncology Learning Objectives**

- **Fundamentals of medical oncology**
  - Understand the common chemotherapy drugs and their mechanism of actions.
  - Understand the common targeted therapies and their mechanisms of actions.
  - Understand and recognize common toxicities of both chemotherapies and targeted therapies and be able to manage them.
  - Understand the fundamentals of tumor biology and metastasis.
  
- **Administration of chemotherapy**
  - Be familiar with common indications, usage administration and dosages for common chemotherapeutics.
  
- **Case management**
  - Possess the ability to interpret and critique pathological reports with regard to the post-operative behavior and need for adjuvant therapy.
  - Understand and recognize paraneoplastic processes and be able to treat them.
  - Understand thoroughly appropriate staging for common veterinary cancers.
  - Understand factors associated with the decisions regarding the timing of chemotherapy following surgery.
  - Understand and possess the ability to appropriately stage patients.
  - Be familiar with non-surgical alternatives for common neoplastic conditions.
  - Possess the ability to use RECIST criteria to describe tumor response.
  
- **Education**
  - Participate in regular case based, oncology rounds, where medical oncology is discussed as a therapeutic option and chemotherapy plans and outcomes are evaluated.
  - Participate in a journal club with a multidisciplinary approach to oncology.
  - Possess knowledge and awareness of current medical oncology literature.

**Appendix 2**  
**ACVS Surgical Oncology Fellow**  
**Radiation Oncology Learning Objectives**

- **Fundamentals of radiation oncology**
  - Understand the basic processes involved in the generation of ionizing radiation.
  - Understand the basic interactions of ionizing radiation with normal tissues and tumors.
  
- **Principles of treatment planning**
  - Possess the ability to differentiate radiation technologies including: point calculation, three dimensional conformal radiation therapy (3D-CRT), intensity modulated radiation therapy (IMRT), image guided radiation therapy (IGRT), stereotactic radiosurgery/ stereotactic radiation therapy (SRS/ SRT), electron therapy, brachytherapy and plesiotherapy.
  - Possess the ability to interpret and critique treatment plans at the level of an ACVS Surgical Oncology Fellow.
  - Understand the processes and purposes for the definition of tumors and associated treatment margins (GTV, CTV, PTV).
  - Understand the role of normal tissue tolerance in treatment plan development.
  
- **Administration of radiation therapy**
  - Observe the fundamentals of patient immobilization and positioning.
  - Be familiar with available immobilization devices (e.g. bite blocks, VacLok cushions).
  - Understand the technologies available for image based verification of patient positioning.
  - Be aware of the technologies available for modulating and optimizing radiation delivery.
  - Observe and participate in the delivery of radiation therapy.
  - Be aware of the role for quality assurance as performed by a medical physicist.
  - Have an awareness and healthy respect for radiation safety.
  
- **Case management**
  - Understand the factors associated with decisions regarding the timing of radiation therapy in relation to surgery.
  - Actively participate in the decision making process regarding the selection of radiation therapy as a neoadjuvant, adjuvant or primary therapy (with DACVR, Radiation Oncology).
  - Understand the factors associated with decisions regarding the selection of the appropriate radiation therapy technology/modality.
  - Actively participate in decision making process regarding the selection of the appropriate radiation therapy technology/modality (with DACVR, Radiation Oncology).
  - Possess the ability to use VROTG tables to quantify acute and late side effects.
  - Understand the nature and behavior of acute and late radiation induced toxicities.
  - Be familiar with the options and indications for medical and surgical management of acute and late radiation induced toxicities.

- **Education**

- Participate in regular case based, oncology rounds, where radiation is discussed as a therapeutic option and radiation treatment plans and outcomes are evaluated.
- Participate in a journal club with a multidisciplinary approach to oncology.
- Possess knowledge and awareness of current radiation oncology literature with particular emphasis upon veterinary radiation oncology.

**Appendix 3**  
**ACVS Surgical Oncology Fellowship Case Log Categories**

Level 1	Level 2
<p><u>Head and Neck</u>  Lymph node removal  Rostral mandibulectomy  Rostral maxillectomy  Nosectomy  Tonsillectomy  Thyroidectomy – simple / mobile  Parathyroidectomy  Pinnectomy  Ear canal ablation – total / vertical  Enucleation</p> <p><u>Thorax</u>  Thoracotomy – lung lobectomy – lateral or sternal  Pericardectomy (alone)  Thymoma - simple</p> <p><u>Abdomen</u>  Liver lobectomy – partial / left  Adrenalectomy – non-invasive  Exploratory Laparotomy  Intestinal resection-anastomosis  Splenectomy  Tube cystostomy  Cystectomy – apex / middle  Nephrectomy</p> <p><u>Skeletal</u>  Amputation – limb / single digit</p> <p><u>Skin / Other</u>  Tumor excision + reconstruction – simple  Anal sac tumor excision – simple  Mastectomy – simple / unilateral</p>	<p><u>Head and Neck</u>  Mandibulectomy – caudal / hemi  Maxillectomy – central / caudal / combined-approach  Rhinotomy – dorsal / ventral  Glossectomy – partial / total  Thyroidectomy – invasive / fixed  Craniotomy  Craniectomy  Zygomectomy  Orbitectomy  Laryngectomy</p> <p><u>Thorax</u>  Thoracotomy – heart base / auricle  Chest wall resection  Sternebrectomy  Thymoma – invasive  Esophageal resection</p> <p><u>Abdomen</u>  Liver lobectomy – hilar / central / right  Adrenalectomy – invasive  Rectal pull-through / pull-out  Cystectomy – caudal / trigone / total / ureteric re-implantation  Urethrectomy  Prostatectomy  Gastrectomy – partial  Vaginectomy and / or vulvectomy</p> <p><u>Skeletal</u>  Amputation – partial foot  Hemipelvectomy  Acetabulectomy  Limb Spare – to include but not limited to: endo / allo / plate in-site / pathological fracture repair / scapulectomy  Vertebrectomy  Spinal tumor</p> <p><u>Skin / Other</u>  Tumor excision + reconstruction – complex – to include but not limited to: axial pattern flap / skin graft / vascularised tissue transfer / major flap / underlying bone  Anal sac tumor excision – massive and/or abdominal / pelvic lymph nodes  Bilateral mastectomy</p>